

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

Westport Fuel Systems Canada Inc.,

Plaintiff

v.

Nissan North America, Inc.,

Defendant.

**Case No. 2:21-cv-00455[JRG/RSP]  
(LEAD CASE)**

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Westport Fuel Systems Canada Inc.,

Plaintiff,

v.

General Motors, LLC,

Defendant,

**Case No.2:21-cv-00456[JRG/RSP]  
(MEMBER CASE)**

**DEFENDANT GENERAL MOTORS LLC'S RESPONSIVE  
CLAIM CONSTRUCTION BRIEF**

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Pursuant to Local Patent Rule 4-5 and the Court’s Docket Control Order, Defendant General Motors, LLC (“GM”) submits this responsive claim construction brief.

## **I. INTRODUCTION**

Plaintiff Westport Fuel Systems Canada Inc. (“Westport”) focuses on alternative fuels, such as natural gas, propane, and hydrogen. But, in this case, it has asserted two expired patents and argues that this outdated technology reads on the diesel fuel injectors that were used in certain GM vehicles. In an effort to stretch its claims to cover the accused technology, Westport has proposed overbroad claim constructions that contradict the intrinsic record. For two terms, Westport tries to read out express limitations required by the claims. In another, Westport attempts to recapture subject matter that it intentionally surrendered during prosecution. Westport’s constructions largely parrot back the claim language, would not assist the jury, and are not how a person of ordinary skill in the art would have understood the terms.

In contrast, GM’s proposed constructions adhere to the intrinsic and extrinsic evidence, including the undisputed expert testimony. The Court should adopt GM’s constructions.

## **II. OVERVIEW OF ASSERTED PATENTS**

Westport has asserted two related patents: U.S. Patent Nos. 6,298,829 and 6,575,138 (the “’829 patent” and “’138 patent,” respectively). The ’138 patent is a continuation-in-part of the ’829 patent and the patents have substantially similar specifications. The patents do not relate to modern fuel injectors, let alone the type of diesel fuel injector that is accused. The patents expired before Westport filed suit.

### **A. The Technology At Issue**

Westport submitted a tutorial created by its attorneys. While parts of that tutorial were accurate, much of it is unsworn and unsupported attorney argument that is irrelevant to claim

construction or simply incorrect. In contrast, GM provided an expert report from Dr. J. Matt Quinlan who provided, under penalty of perjury, an overview of the technology and an explanation of how a person of ordinary skill in the art would have understood the disputed terms. Ex. A (Quinlan Report). This expert testimony is unrebutted.

The patents relate to “high pressure fuel injection valves or injectors for internal combustion engines” that are “directly controllable by a position activating material (such as, for example, a piezoelectric or magnetostrictive material)....” ’829 patent, 1:12-16.<sup>1</sup> In other words, fuel enters the valve through a fuel inlet port, is stored in an interior chamber, and exits the valve through a nozzle leading to the engine’s combustion chamber. The actuator applies closing and opening forces so that the valve seals and unseals the passage from the interior chamber to the combustion chamber. *Id.*, 12:28-56.

This was not a new idea. The patents admit the prior art taught that “[d]irect injection,” where fuel is injected directly into the “combustion chamber of an internal combustion engine,” was “desirable” because it improves engine performance and reduces emissions. *Id.*, 1:21-32. While the patented injector includes a “passive hydraulic link” (*id.*, 1:17), the patents concede that “prior direct fuel injection systems” that were “hydraulically actuated,” employ “solenoid actuators,” or “use piezoelectric or magnetostrictive actuation,” were all known and available when the patents were filed. *See, e.g., id.*, 1:56-57, 2:24-27, 2:62-65.

But, according to the patents, there were problems with this prior art. For example, the patents argue that hydraulically actuated systems require “additional hydraulic hardware” that adds “increased bulkiness” and subjects the system to a “delayed response” and reduced

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<sup>1</sup> Because the asserted patents are related and share a very similar specification and claims, much of the relevant technology is the same for both and an explanation is provided with citation to the earlier ’829 patent. The differences in the ’138 patent are addressed in the next section.

“controllability of the movement of the injection valve.” ’829 patent, 2:1-23. Solenoid actuators are “not suitable for” use with “high-pressure fuels.” *Id.*, 2:45-48. And, known piezoelectric and magnetostrictive actuators were, according to the patents, only used to “operate a control valve, which in turn controls the flow of a hydraulic fluid to operate an injection valve.” *Id.*, 3:39-42. This introduces delay and necessitates hydraulic fluid supply. *Id.*, 3:42-50.

To respond to these purported issues, the patents propose a “directly actuated” injector that does not include “an intermediate active hydraulic operator generating any actuating forces.” ’829 patent, 3:45-48. The patents’ injector includes a “passive hydraulic link” (*id.*, 4:20, 7:10-20), but unlike “[c]onventional active hydraulic operators,” this passive link “merely transmits the actuating forces” “but is not employed to generate an actuating force for actuating the valve.” *Id.* This “passive hydraulic link” also provides a “further advantage” in that it “may be employed to correct for differential thermal expansion, wear and dimensional variability within permitted manufacturing and assembly tolerances.” *Id.*, 7:43-46. The link does this by “auto-adjusting itself in response to these effects by allowing movement of hydraulic fluid between opposite sides of [a] hydraulic piston” to “re-zero[] itself to ensure that [a] desired valve needle lift is maintained.” *Id.*, 7:46-51. Annotated versions of Figs. 1 and 2 of the ’829 patent provide an example. *See* Ex. A (Quinlan Report) at ¶¶ 48-62.

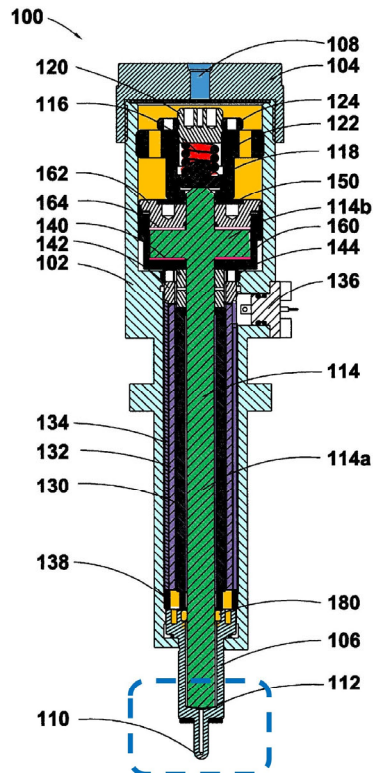


Figure 1

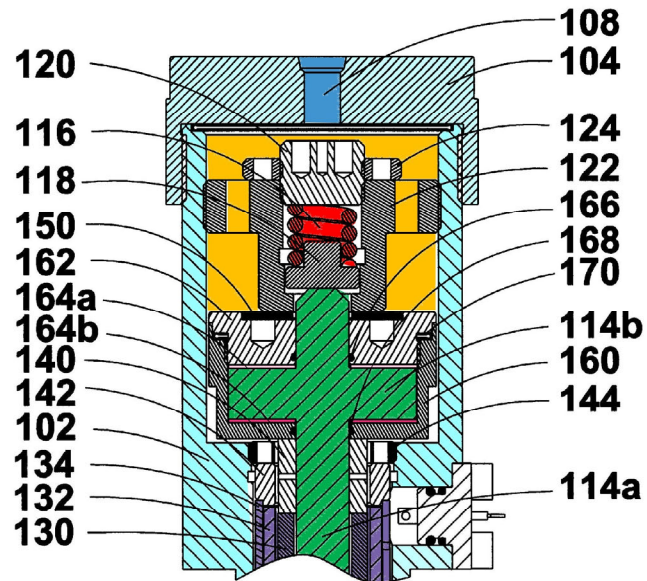


Figure 2

*Id.*, Figs. 1-2 (annotated); *see also* Ex. A (Quinlan Report) at ¶ 48.

These figures depict a “directly actuated fuel injection valve 100.” ’829 patent, 8:39-41. A “valve housing 102,” “cap 104,” and “tip 106” (teal) surround the injector’s components and “provide a fluidly sealed valve body.” *Id.*, 8:41-43. An “inlet port 108” (blue) allows fuel to enter the hollow injector interior (partially annotated orange). *Id.*, 8:45-46. “Valve tip 106” includes a “nozzle orifice 110” (circled) “through which fuel exits” the injector and enters the combustion chamber. *Id.*, 8:46-48. A “valve needle 114” (green) is located within the injector. *Id.*, 8:59-60. One end of the needle is located at the nozzle orifice. *Id.*, 8:59-62. The other end is located adjacent to a “needle spring 116” (red) that “biases valve needle 114 in the closed position.” *Id.*, 9:16-19.

A “magnetostrictive actuator” including a member 130, coil 132, and flux tube 134



(purple) is located within the housing. '829 patent, 9:45-49. To open the valve, current is applied to the actuator causing it to “expand” and “provide[] an opening force in opposition to the closing force of the spring assembly.” *Id.*, 9:51-10:8. “The opening force generated by the actuator assembly is transmitted to valve needle 114 through” “hydraulic fluid 164b” (small area of dark pink) of “a hydraulic link assembly.” *Id.*, 10:62-64; 12:46-51. The space containing fluid 164b is connected to another space containing fluid 164a (small area of light pink) via a “narrow clearance gap between” the needle’s “piston 114b and hydraulic cylinder 160.” *Id.*, 12:57-60. During actuation, fluid “does not have time to flow” through this gap and the fluid 164b instead “acts as a solid and transfers the movement of magnetostrictive member 130 to valve needle 114.” *Id.*, 12:57-66. But, when the injector is at “rest,” “fluid” 164b and 164a can “redistribute itself by flowing through the clearance gap” so as to “re-zero” the piston. *Id.*, 11:41-49; Ex. A (Quinlan Report), ¶¶ 34-62.

### **B. The '138 Patent**

The direct fuel injection valve of the '138 patent is substantially similar to that in the '829 patent. The main difference is that the '138 patent discloses an outwardly opening direct fuel injection valve that utilizes a valve member instead of the needle valve and valve needle disclosed in the '829 patent. *See* Ex. A (Quinlan Report), ¶¶ 77-91. “Opposed to a needle valve, which employs a needle that is retracted into the valve body to open the valve, an outward opening injection valve extends a valve member outward and away from the valve body to open the valve.” '138 patent, 8:61-67.

### **III. LEGAL PRINCIPLES**

“[C]laim construction is a matter of law....” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed Cir. 1995), *aff'd*, 517 U.S. 370 (1996). Claim terms are generally given their

plain and ordinary meaning, which is the meaning a term would have to a person of ordinary skill in the art after reviewing the intrinsic record at the time of the invention. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc)). “The ordinary meaning may be determined by reviewing various sources, such as the claims themselves, the specification, the prosecution history, dictionaries, and any other relevant evidence.” *Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1002-1003 (Fed. Cir. 2016).

Claim construction begins with the intrinsic evidence. The specification “is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). “The court should also consider the patent’s prosecution history.” *Markman*, 52 F.3d at 980.

“The court may, in its discretion, receive extrinsic evidence in order to aid the court in coming to a correct conclusion as to the true meaning of the language employed in the patent.” *Id.* (internal quotation marks and citation omitted). “Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Id.*

#### **IV. DISPUTED CLAIM TERMS**

There are five disputed claim terms. In an effort to stretch its expired patents to cover modern diesel injectors, Westport has proposed overly broad constructions that ignore the intrinsic evidence. In contrast, GM follows the guidance of the patents’ specification and prosecution history, as confirmed by the undisputed expert and dictionary evidence.

##### **A. “Fluid Passage From Said Interior Chamber To Said Combustion Chamber”**

The parties’ primary dispute is whether the claimed passage is one through which the

fluid will flow in a particular direction (“*from* the interior chamber *to* the combustion chamber”) or whether, as Westport proposes, that limitation should be read out and the claim construed to cover any pathway connecting the two chambers and any direction of fluid flow.

Term	GM’s Construction	Westport’s Construction
“fluid passage from said interior chamber to said combustion chamber” ’829 patent, claim 1	“passage for fuel to flow from the interior chamber to the combustion chamber”	“a pathway fluidly connecting the interior chamber and the combustion chamber”

### 1. GM’s Construction Is Supported By The Intrinsic Evidence

As the Federal Circuit has held, “the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Here, the claims resolve the dispute by unambiguously requiring that the claimed fluid passage is one where fuel flows “from said interior chamber to said combustion chamber”:

- (a) a valve housing comprising:
  - a fuel inlet port;
  - an interior chamber fluidly connected to said fuel inlet port;
  - a nozzle comprising a nozzle orifice providing a **fluid passage from said interior chamber to said combustion chamber**;

This makes sense, particularly since claim 1 is directed to “[a]n injection valve for injecting fuel into a combustion chamber of an internal combustion engine.” ’829 patent, claim 1. The claimed injector has “an interior chamber fluidly connected to said fuel inlet port.” *Id.* Thus, a POSITA would understand that the fluid fuel flows from the fuel inlet port to the interior chamber and through “a fluid passage from said interior chamber to said combustion chamber,” exactly as required by the claim and GM’s construction.<sup>2</sup> Ex. A (Quinlan Report), ¶¶ 161-168.

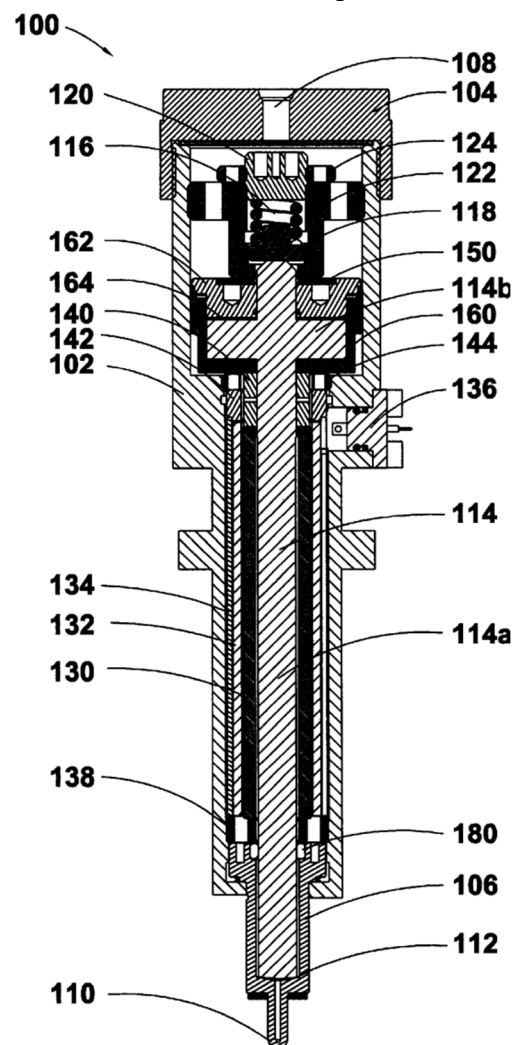
<sup>2</sup> With respect to the asserted patents, a POSITA would have had a degree in mechanical engineering or a similar discipline, along with 2 years of professional experience working with the design and development of fuel injection systems for internal combustion engines or an equivalent level of skill, knowledge, and experience. Ex. A (Quinlan Report), ¶ 26.

In addition to the claims, “the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). Here, the specification clearly teaches a POSITA that the claimed “fluid passage” is one that allows fluid to flow **from** the interior chamber (connected to the fuel inlet port) **to** the combustion chamber. Ex. A (Quinlan Report), ¶¶ 163-166.

For example, Figure 1 of the '829 patent shows ‘embodiment of a directly actuated fuel injection valve.’”

'829 patent, 8:23-24. "[F]uel enters the valve body" through "inlet port 108" and "fuel exits the valve body" through "nozzle orifice 110" to reach the combustion chamber (not shown). *Id.* 8:45-49. The fuel flow is regulated by valve needle 114, which "contacts valve seat 112 to close injection valve 100 by preventing fuel from passing beyond valve seat 112 to nozzle orifice 110." *Id.* 8:59-62. When the valve needle is in "an open position" then "the sealing end of the valve needle is spaced apart from the valve seat whereby the interior chamber is fluidly connected with the nozzle orifice." *Id.* 4:5-8. This allows the fluid fuel to flow from the interior chamber to the combustion chamber. *See Ex.*

A (Quinlan Report), ¶¶ 161-168.



“An injection valve injects fuel into a combustion chamber of an internal combustion engine.” *Id.*, 3:58-59. Thus, from the specification a POSITA would understand that the claimed “fluid passage” is one that allows fuel to flow *from* the interior chamber (connected to the fuel inlet port) through the nozzle orifice *to* the combustion chamber. Ex. A (Quinlan Report), ¶ 165. It would be nonsensical—and a POSITA would not have understood—for the claimed fluid passage to be one where fuel flows away from the combustion chamber towards the interior chamber/fuel inlet port. *See* Ex. B (Quinlan Dep. Tr.), 63:3-9 (“[T]he patent is clear in its description that the fuel direction is from the inlet to the combustion chamber.”). This is particularly true because “[t]he present invention relates generally to high pressure fuel injection valves” (’829 patent, 1:12-13) and a POSITA would understand that the fluid would flow from the high pressure fuel inlet port and out the lower pressure nozzle orifice. Ex. A (Quinlan Report), ¶ 165 (“The only embodiments in the ’829 Patent disclose a directly actuated injection valve, where the fuel flows from the interior chamber to the combustion chamber. There is no disclosure of fuel flowing in the opposite direction, i.e., from the combustion chamber to the interior chamber.”).

## 2. Westport’s Construction Reads Out The “To” And “From” Requirement

Seeking to stretch its claims to cover a completely different type of injector, Westport attempts to remove from the claim the express requirement that the fuel is to flow “from said interior chamber to said combustion chamber.” ’829 patent, claim 1. This is improper. “Not only would [reading out limitations] be contrary to the principle that claim language should not [be] treated as meaningless, but it would be contrary to the specification, which describes the features of the [discarded claim language] in detail, not only in the description of the preferred embodiments, but in the background and summary of the invention portions of the specification

as well.” *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 951 (Fed. Cir. 2006). Broadening the claim in this way would capture a fuel injector arrangement that the patent never even contemplates, let alone adequately describes, as the invention. *See* Ex. B (Quinlan Dep. Tr.), 64:1-8 (“[T]he fluid has a direction that it flows within this passage and that shouldn’t be removed from its definition.”).

Westport argues “the ‘fluid passage’ is simply a corridor that connects two spaces within the fuel injector.” Opng. Br. at 24. By this, Westport suggests a “corridor” through which fuel flows away “from” the combustion chamber “to” the interior chamber would satisfy a claim that requires the literal opposite. Opng. Br. at 25 (arguing no “directionality”). Westport does this to help its infringement case. The Court should reject this construction that would, “in effect, rewrite its patent claims to suit its needs in this litigation.” *See Nike Inc. v. Wolverine World Wide, Inc.*, 43 F.3d 644, 647 (Fed. Cir. 1994); *see also* Ex. A (Quinlan Report) at ¶¶ 165-168.

Westport provides neither intrinsic nor extrinsic support for its construction. *See* Opng. Br. at 24-26. Instead, Westport raises two objections to GM’s construction. Neither is persuasive.

**First**, Westport argues that since claim 1 is an apparatus claim it “should be construe [sic] to mean the structural arrangement” and that GM’s proposed construction “seeks to include functional language.” Opng. Br. at 24 and 25. As the Federal Circuit has explained, “[t]hat structural terms are sometimes defined—through claim construction—by the functions they are designed to perform does not somehow convert those structural terms into ‘an intended use’ stripped of any patentable weight.” *Matthews Int’l Corp. v. Vandor Corp.*, 725 F. App’x 1002, 1003 (Fed. Cir. 2018). And Westport identifies no authority suggesting that express claim language in an apparatus claim can somehow be ignored if characterized as “functional.”

**Second**, Westport argues that “the claims and specification contemplate various arrangements” of the claimed components and Westport provides the example that “neither the claims nor the specification requires that the fuel inlet port to be located in the valve cap.” Opng. Br. 25. That may be true, but it is irrelevant. GM is not seeking to restrict where the fuel inlet port is located or whether the fuel could flow along a passage “that cools the inner diameter of the actuator.” Opng. Br. at 26. Instead, all that is required is that the claimed “fluid passage” is “from said interior chamber to said combustion chamber.” ’829 patent, claim 1. This does not exclude any embodiment.

**B. “Valve Member”**

The parties agree that, when closed, the claimed valve member “seals” something. The dispute centers on where the claimed valve member is located. Consistent with the ’138 patent’s claims and specification, GM proposes that the claimed valve member seals the interior chamber from the combustion chamber. Westport’s construction throws up a barrage of words but appears intended to broaden the claims to cover any valve located anywhere that seals anything.

<b>Term</b>	<b>GM’s Construction</b>	<b>Westport’s Construction</b>
“Valve member” ’138 patent Claims 1, 19, 28	“Member that directly seals interior chamber from combustion chamber”	“Defined by the claim itself: a valve component having a sealing surface that fluidly seals against said valve seat when said injection valve is closed and that is liftable away from said valve seat when said injection valve is open”

**1. GM’s Construction Is Supported By The Intrinsic Evidence**

Once again, “the claims themselves provide substantial guidance as to the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. Here, the claims specify that the valve member “cooperat[es]” with a valve seat “to seal said interior chamber from said combustion chamber when said injection valve is closed.” And, to remove any possible doubt, the claim

further specifies that the valve member extends “towards said combustion chamber”:

Claims 1 of the '138 patent recites the term “valve member”:

- (a) A valve housing comprising:
  - a fuel inlet port;
  - an interior chamber fluidly connected to said fuel inlet port; and
  - a valve seat for cooperating with a **valve member** to seal said interior chamber from said combustion chamber when said injection valve is closed;
- (b) said **valve member** having one end disposed within said valve housing and an opposite end extendable from said valve seat toward said combustion chamber, wherein said **valve member** comprises a sealing surface that fluidly seals against said valve seat when said injection valve is closed and that is liftable away from said valve seat when said injection valve is open;

In light of the claims and consistent with GM’s construction, a POSITA would understand the “valve member” is located between and seals the interior chamber from the combustion chamber. “[T]he term ‘valve member’ within the '138 Patent must therefore refer to an injection valve member that separates the injector’s interior chamber from the combustion chamber.” Ex. A (Quinlan Report), ¶ 155; *see also id.*, ¶¶ 137-160. Such a valve “directly seals” the interior chamber from the combustion chamber because there is no other intervening valve. Ex. B (Quinlan Dep. Tr.) at 56:18-57:10.

The specification of the '138 patent also requires GM’s proposed construction. “The valve member is movable between a closed position and an open position for governing the flow of fuel into the combustion chamber of an internal combustion engine.” '138 patent, Abstract. “The sealing surface of valve member 114 contacts valve seat 112 to close injection valve 100 by preventing fuel from passing beyond valve seat 112 and into the combustion chamber.” *Id.*, 9:61-64. “Once valve member 114 contacts valve seat 112, injection valve 100 is closed.” *Id.* at 15:14-15. This would confirm to a POSITA that the claimed valve member is between the



interior chamber and the combustion chamber so that, when closed, the valve member directly seals the interior chamber from the combustion chamber. Ex. A (Quinlan Report), ¶¶ 143-152.

**2. Westport's Construction Expands The Claim To Cover Any Valve Anywhere That Seals Anything**

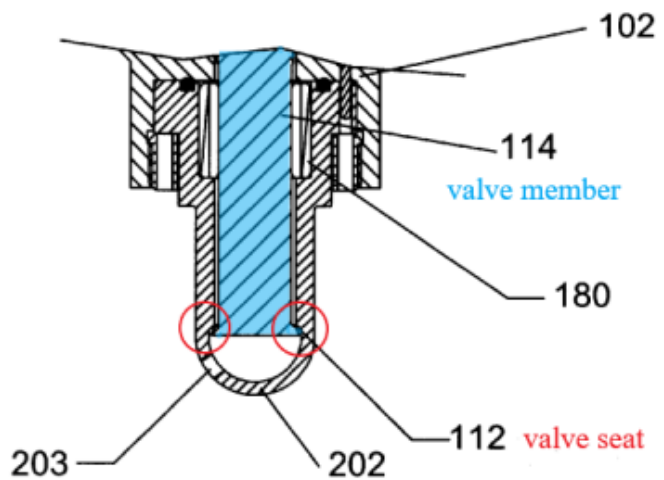
The '138 patent describes and claims an injector with a valve member that directly seals the interior chamber from the combustion chamber. *See, e.g.*, '138 patent, FIG. 1 and 9:59-64 (“With reference to FIG. 1, valve member 114 is disposed within the interior of valve housing 102 and extends through an opening in the tip of valve housing 102. The sealing surface of valve member 114 contacts valve seat 112 to close injection valve 100 by preventing fuel from passing beyond valve seat 112 and into the combustion chamber.”). In the accused products, the valve that Westport identifies as including the “valve member” would not infringe. Thus, Westport seeks to expand the “valve member” limitation to include an entirely different valve that is not disclosed in its patent and that is not between (and does not directly seal) the interior chamber and combustion chamber. That construction is unsupported—indeed, contradicted—by the '138 patent. It is not the plain and ordinary meaning of “valve member.” Ex. A (Quinlan Report), ¶ 153.

Westport's construction is, at best, incomplete. GM agrees that a valve member is “a valve component having a sealing surface that fluidly seals against said valve seat when said injection valve is closed and that is liftable away from said valve seat when said injection valve is open.” But, this is insufficient because it provides no explanation as to where this valve is located or what is sealed—as required by the claims.

Once again, Westport does not cite evidence to support its proposed construction. *See* Opng. Br. at 12-16. Instead, it takes issue with GM's. *First*, Westport argues that the requirement of GM's construction that the valve member is between and directly seals the

interior chamber from the combustion chamber would exclude “several different exemplary embodiments.” Opng. Br. at 14. But, that would only make sense if there were embodiments in the ’138 patent where a valve member does not directly seal the interior chamber from the combustion chamber. There are none and, thus, no embodiments are excluded by GM’s construction.

Westport relies on the ’138 patent at 9:38-47, which describes a chamber in nozzle tip 202 “that is connected to the combustion chamber by nozzle ports or orifices [203].” Opng. Br. at 14. But, that is not excluded by or inconsistent with GM’s construction. *See* Ex. B (Quinlan Dep. Tr.), 50:3-8 (referring to the nozzle port or orifice as “just a [ ]hole” and “part of the passage from the interior chamber to the combustion chamber”). As shown in the annotated Figure, that embodiment merely describes “features for influencing how the fuel is introduced into the combustion chamber.” ’138 patent, 9:38-



**FIG. 2a**

40 and FIG. 2a. “The sealing surface of valve member 114 contacts valve seat 112 to close injection valve 100 by preventing fuel from passing beyond valve seat 112 and into the combustion chamber,” just like in Figure 1. *Id.* at 9:61-64. Thus, the valve member remains between and directly seals the interior chamber from the combustion chamber.

**Second,** Westport repeats its argument that GM “seeks to define [the term] functionally by what it does.” Opng. Br. at 16. As with the prior term, “structural terms are sometimes defined—through claim construction—by the functions they are designed to perform.”

*Matthews Int’l Corp.*, 725 F. App’x 1002 at 1003. And, Westport’s argument rings particularly hollow since, like GM, Westport has offered a construction that defines “valve member” by what it does (GM: “member that directly seals” vs. Westport: “component... that fluidly seals”).

### C. “Valve Needle”

The parties agree that the claim term “valve needle” describes a particular shape of the valve component. The dispute is whether that needle-shape is “a slender elongated pointed rod” (as GM proposes) or merely anything “having a cylindrical portion” (as Westport argues).

Term	GM’s Construction	Westport’s Construction
“Valve needle” ’829 patent Claims 1, 14, 20	“Valve consisting of a slender elongated pointed rod that directly seals interior chamber from combustion chamber.”	“A valve component having a cylindrical portion with a sealing end”

#### 1. GM’s Construction Is Supported By The Intrinsic Evidence

Claim 1 of the ’829 patent recites the term “valve needle”:

- (b) a **valve needle** disposed within said valve housing wherein said **valve needle** is movable between a closed position at which a sealing end of said **valve needle** contacts a valve seat to fluidly seal said interior chamber from said nozzle orifice, and an open position at which said sealing end of said **valve needle** is spaced apart from said valve seat whereby said interior chamber is fluidly connected with said nozzle orifice, wherein **valve needle** lift equals the distance traveled by said sealing end away from said valve seat;

A “valve needle” is a specific type of “valve member.” *See* Ex. A (Quinlan Report)

¶ 135. Thus, for the reasons set forth in the “valve member” section above, the claimed “valve needle” is between (and directly seals) the interior chamber and the combustion chamber. The specification confirms that “the valve needle is movable between a closed position at which a sealing end of the valve needle contacts a valve seat to fluidly seal the interior chamber from the nozzle orifice, and an open position at which the sealing end of the valve needle is spaced apart from the valve seat.” ’829 patent, 4:1-10. This is shown in FIG. 1 of the ’829 patent.

Unlike the '138 patent, which broadly claims a “valve member” of indefinite shape, a POSITA would have understood the claims of the '829 patent are limited to a specific type of injection valve—a needle valve with a “valve needle.” Ex. A (Quinlan Report) ¶¶ 113-125. The claims require a valve comprising “a valve needle,” “a needle spring,” and features of standard needle valve operation. *See, e.g.*, '829 patent, claims 1 and 23. “[A] needle valve... employs a **needle** that is retracted into the valve body to open the valve.” '138 patent, 8:63-65 (emphasis added). The needle employed in a needle valve is called a “valve needle.”<sup>3</sup>

“[T]he words of a claim are generally given their ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312 (internal quotation marks and citation omitted). And, in both the '829 patent and everyday parlance, “needle” has a customary meaning. Whether the context is sewing, medicine, plumbing, or injection valves, a “needle” is “a slender elongated pointed rod.” The term “needle” connotes a specific structure or shape and should be construed accordingly. *See, e.g.*, Ex. A (Quinlan Report) ¶ 130; *see also* Ex. B (Quinlan Dep. Tr.), 26:6-10. For example, in *Ernie Ball, Inc. v. Earvana, LLC*, the Federal Circuit affirmed a judgment construing “sinusoidal” to mean “a configuration that strictly conforms to the shape of a sine wave or arc” rather than to mean “indicating any configuration not conforming to a straight line.” 502 F. App'x 971, 977 (Fed. Cir. 2013). The Court agreed that “the ordinary meaning of ‘sinusoidal’... indicate[d] a configuration conforming to the shape of a sine wave or arc,” and “neither the

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<sup>3</sup> Westport quibbles over the difference between a “valve needle” and a “needle valve.” Opng. Br. 7-8. This argument is an insubstantial distraction. Dr. Quinlan opined that the two terms were “interchangeable” because all needle valves have valve needles, and valve needles are only in needle valves. *See* Ex. B (Quinlan Dep. Tr.) at 31:19-32:23. Regardless, to minimize the claim construction disputes, GM would not object to a construction that uses “valve component” instead of “valve,” if the Court were so inclined. *Id.*

specification nor the prosecution history of the [asserted] patent clearly sets forth a different definition.” *Id.* The same rationale applies here to “needle.”

Construing the term “valve needle” requires applying the commonly understood and widely-accepted meaning of the term “needle.” *Phillips*, 415 F.3d at 1314. “[G]eneral purpose dictionaries may be helpful” for ascertaining the common meanings of terms. *See id.* The dictionary definition of “needle” at the time of the filing of the ’829 Patent was “a slender pointed rod controlling a fine inlet or outlet (as in a valve).” Ex. A ¶ 132 (citing Ex. B to the Quinlan Report, definition 3(d) of “needle”). Similarly, the definition of “needle valve” around that time was “[a] valve having a slender point fitting into a conical seat, used to regulate accurately the flow of a liquid or gas.” *Id.* (citing Ex. C to Quinlan Report). Notably, this definition differs from the definition of the term “valve,” demonstrating that a needle valve is more specific than a generic valve. *See* Ex. A ¶ 133 (citing Ex. C to Quinlan Report (defining “valve” as “[a]ny various devices that regulated the flow of gases, liquids, or loose materials through piping or through apertures by opening, closing, or obstructing ports or passageways”); citing Ex. B to Quinlan Report (providing a similar definition for “valve”)). Westport’s position that a “valve needle” is merely “a cylindrical portion with a sealing end,” Opng. Br. at 7, reads out the word “needle” and improperly broadens the scope of the claims.

## **2. Westport’s Construction Ignores The Plain Meaning Of “Needle”**

Westport argues that “a ‘valve needle’ is a term created by the patentees.... [that] differs from the common usage of any of these terms.” Opng. Br. at 8. This is wrong. Unlike the clear lexicography for “lift” (discussed below), there is no definitional language for “valve needle” in the ’829 patent’s specification, and Westport identifies none. If the inventor really was acting as a lexicographer and creating a new “term of their own making” (*id.*) that a POSITA would not have otherwise understood, then the claims are invalid because the ’829 patent lacks an express

definition. Regardless, GM is the only party offering testimony of how a POSITA would understand the asserted patents, and Dr. Quinlan's un rebutted testimony is that the term "needle valve" is a common one with a well-known meaning. Ex. A (Quinlan Report) at ¶¶ 131-33.

Once again, Westport does not attempt to support its own construction. Instead, it criticizes GM's. **First**, Westport argues that "[s]lender and elongated are both relative terms" and, thus, according to Westport, "unhelpful and potentially confusing." Opng. Br. at 9. Westport, however, has not cited any law or rule that prohibits construing a claim with relative terms when appropriate. Courts do this all the time and it is neither improper nor does it render the claim indefinite. *See Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1360 (Fed. Cir. 2012) ("This court affirms the district court's conclusion that Claim 6 is not rendered indefinite by the relative term 'easily... washed off.'"). Based on the intrinsic record, extrinsic dictionary definitions, and the knowledge of skilled artisans, a person of ordinary skill in the art at the time of the invention would have understood "valve needle" to mean "a slender elongated pointed rod that directly seals interior chamber from combustion chamber."<sup>4</sup> *See* Ex. A (Quinlan Report) at ¶¶ 111-136.

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<sup>4</sup> Westport also argues that the claimed valve needle need not be pointed because Westport believes the valve in Figure 3 is flat at its sealing end. This is wrong for several reasons. First, the valve needle in Figure 3 is not flat and a person of ordinary skill would have understood Figure 3 to illustrate a pointed rod in view of the specification, which describes a "differential angle between the end surface of valve needle 1[1]4 and valve seat 112." *See* Ex. A (Quinlan Report) at ¶ 131 (opining that a skilled artisan would have understood the specification to disclose a needle having an angled tip, *i.e.*, a slender elongated pointed rod); Ex. B (Quinlan Dep. Tr.) at 4-:1-41:12. Moreover, even if the image were flat it would be irrelevant because "it is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue." *Hockerson-Halberstadt, Inc. v. Avia Grp. Int'l*, 222 F.3d 951, 956 (Fed. Cir. 2000); *see In re Olson*, 212 F.2d 590, 592 (C.C.P.A. 1954) ("Ordinarily drawings which accompany an application for a patent are merely illustrative of the principles embodied in the alleged invention claimed therein and do not define the precise proportions of elements relied upon to endow the claims with patentability.").

**Second**, Westport argues that “[t]he ’829 patent also discloses a ‘poppet-type valve tip,’ which may not be described as slender, elongated, or pointed.” Opng. Br. at 9 *citing* ’829 patent at 9:7-10. But, the passage Westport cites actually supports GM because it makes clear that even in this “alternative arrangement” the only difference is the shape of the tip of the valve needle:

*In the preferred embodiment* illustrated by FIG. 1 **valve needle** 114 further comprises a separate piston member may cooperate with valve needle 114 to provide the same effect. *In an alternative arrangement* (not shown), a **poppet-type** valve tip may be used so that downward movement of the valve needle causes it to open.

’829 patent, 9:4-10; *see also* Ex. B (Quinlan Dep. Tr.), 43:20-25. From this, a POSITA would understand that regardless of the type of tip, the patent requires a valve needle, which is a slender, elongated rod as shown in FIG. 1.

**Third**, Westport repeats its argument that the valve needle need not “directly seal the interior chamber from the combustion chamber.” Opng. Br. at 10. This argument fails for the same reason as with the “valve member” term. *See, supra*, Section IV.B.

Thus, “the term ‘valve needle’ within the ’829 Patent must therefore refer to an injection valve needle that separates the injector’s interior chamber from the combustion chamber.” Ex. A (Quinlan Report), ¶ 128; *see also id.* at ¶¶ 129-136.

#### **D. “Lift”**

The proposed constructions are similar, but GM’s is the express definition of “lift” in the asserted patents while Westport’s different, attorney-created construction merely parrots back the claim language.

<b>Term</b>	<b>GM’s Construction</b>	<b>Westport’s Construction</b>
“Lift” ’138 patent Claims 1, 17, 18 ’829 patent Claims 1, 11, 12	“The displacement of the valve [needle (’829 patent)/ member (’138 patent)] away from its closed/seated position to its open position.”	“The distance traveled by said sealing end away from said valve seat”

### 1. GM's Construction Is The Express Definition In The Specification

The Westport patents recognize that “conventional” injector technology controlled how much fuel was injected into the combustion chamber by “duration control (how long the valve is open for).” ’829 patent, 2:59-61. In contrast, the alleged invention uses “position control (how much the valve is lifted).” *Id.* “[T]he actuator assembly is controllable to control the desired lift between 10 and 100 percent of maximum lift. That is, the control pulse directed to the actuator assembly can be modulated to provide full or partial lift, as desired.” *Id.*, 4:51-55. In this way, the Westport injectors can “provide only partial lift when reduced fuel flow is desired.” *Id.*, 6:46-47; *see also* Westport Tutorial at 4:42-5:11 (distinguish between “relatively simple” prior art actuators that “provide the ability to control the duration of fuel injection or the amount of time a valve is open and fuel in flowing” from the alleged invention that provided “a much more precise injector” “to reliably control valve lift over the life of a fuel injector.”).

Consistent with this alleged invention, claim 1 of the ’829 and ’138 patents requires a valve needle or member that can be controlled by raising it a specific amount of “lift”:

- (b) a valve needle disposed within said valve housing wherein said valve needle is movable between a closed position at which a sealing end of said valve needle contacts a valve seat to fluidly seal said interior chamber from said nozzle orifice, and an open position at which said sealing end of said valve needle is spaced apart from said valve seat whereby said interior chamber is fluidly connected with said nozzle orifice, wherein valve needle **lift** equals the distance traveled by said sealing end away from said valve seat;

’829 patent (claim 1).

- (e) a hydraulic link assembly comprising a passive hydraulic link having a hydraulic fluid thickness through which said opening and closing forces are transmitted, whereby said hydraulic fluid acts substantially as a solid with said thickness being substantially constant while said actuator assembly is actuated and wherein said thickness of said hydraulic link is adjustable while said actuator is not activated in response to changes in the dimensional relationship between components of said injection valve to



maintain a desired valve needle **lift** upon actuation of said actuator assembly.

'138 patent (claim 1).<sup>5</sup>

There is no ambiguity about what is meant by “lift” because the applicants provided an express definition:

“Lift” in the context of injection valves is defined herein as the displacement of the valve needle or member away from its closed/seated position to its open position.

'138 patent, 2:48-51; '829 patent, 2:21-23 (“Lift” in the context of needle valves is defined herein as the displacement of the valve needle away from its closed/seated position to its open position.”); *see also* '829 patent, Abstract (“The displacement of the valve needle from the closed position is defined as the lift.”). Because “the patent drafter is in the best position to resolve the ambiguity in the patent claims” (*Halliburton Energy Servs. v. M-I LLC*, 514 F.3d 1244, 1255 (Fed. Cir. 2008)) “[w]hen the specification explains and defines a term used in the claims, without ambiguity or incompleteness, there is no need to search further for the meaning of the term.” *Sinorgchem Co. v. ITC*, 511 F.3d 1132, 1138 (Fed. Cir. 2007) (citation omitted). “In such cases, the inventor’s lexicography governs,” such that “the patentee must be bound by the express definition.” *Id.* at 1136 (citation omitted).

The patentee’s definition of “lift” should be adopted as GM proposes. This gives effect to both the express definition in the specification and what Westport characterized as the supposedly novel invention—the ability to control the amount that the valve is open (its “lift”) rather than merely the duration that it is open (the prior art “duration control”).

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<sup>5</sup> Westport argues that “desired lift” is not a disputed term for construction. Opng. Br. at 17, n. 3. The parties dispute “lift,” which appears in the '138 patent claims within the term “desired valve lift upon actuation....”

## 2. Westport's Construction Ignores The Express Definition And Adds Ambiguity

Westport makes several arguments why the Court should ignore the express definition in the patents' specification. None are availing.

**First**, Westport argues that the definition of "lift" is limited to "the context of needle valves." Opng. Br. at 18. As an initial matter, that should resolve the issue with respect to the '829 patent since those claims are directed to "valve needle lift." '829 patent, claim 1. But even as to the '138 patent, Westport is wrong. Although the '829 patent defines lift in the context of valve needles, '829 patent, 2:21-23, the '138 patent uses the same express definition and applies it more broadly to all "injection valves" and valve "members." It states: "'Lift' *in the context of injection valves* is defined herein as the displacement of the valve needle *or member* away from its closed/seated position to its open position." '138 patent, 2:48-51. In other words, both patents include the same express definition of "lift" as applied to the specific type of valve for each patent. Westport's argument does not acknowledge this distinction.

**Second**, Westport argues that the claim limitation makes no sense when GM's construction is incorporated into the claim. Opng. Br. at 19. Even were it required that a claim construction could be simply inserted into a claim to replace the construed term (and, notably, most of Westport's constructions fail this test), replacing "lift" with GM's construction makes perfect sense:

"valve needle [displacement of the valve needle away from its closed/seated position to its open position] equals the distance traveled by said sealing end away from said valve seat."

*See, e.g.*, '829 patent, claim 1. It is Westport's construction that renders the claim limitation nonsensical, as it merely restates (and thus wrongly duplicates) language that already exists in the claim:

“valve needle [distance traveled by said sealing end away from said valve seat] equals the distance traveled by said sealing end away from said valve seat.”

*Third*, Westport argues that the claims, themselves, define “lift” and that GM’s construction is somehow inconsistent. Opng. Br. at 17. Not so. While, for example, claim 1 of the ’829 patent states that “lift equals the distance traveled by said sealing end away from said valve seat,” the claim does not explain how that is measured, where the distance begins, or where it ends. Those questions are answered by the specification’s express definition and GM’s construction: “The displacement of the valve [needle (’829 patent)/ member (’138 patent)] away from its closed/seated position to its open position.” Westport’s proposed construction, by contrast, does not answer these critical questions.

Westport’s construction (to the extent it can be considered a construction) is ambiguous at worst, and incomplete at best. The Court should adopt GM’s proposed construction, which gives effect to the express definition of “lift” in the patents-in-suit.

#### **E. “Passive Hydraulic Link”**

The parties agree that a “passive hydraulic link” includes a hydraulic fluid that transmits actuating forces (what Westport calls the “opening and closing forces”). To overcome prior art during the patents’ prosecution, Westport represented to the Examiner and the public that “passive hydraulic link” had a particular meaning. GM’s proposed construction gives effect to this prosecution history while Westport ignores it and attempts to recapture the scope that it disclaimed.

<b>Term</b>	<b>GM’s Construction</b>	<b>Westport’s Construction</b>
“Passive hydraulic link” ’138 patent, claims 1, 4 ’829 patent, claims 1, 4	“sealed hydraulic fluid transmitting actuating forces but not employed to generate an actuating force”	“a hydraulic fluid thickness through which said opening and closing forces are transmitted”

1. **GM's Construction Gives Effect To Westport's Prosecution Disclaimer**

The term “passive hydraulic link” appears in claim 1 of the '829 patent and the '138 patent:

- (e) a hydraulic link assembly comprising a **passive hydraulic link** having a hydraulic fluid thickness through which said opening and closing forces are transmitted,

'829 patent (claim 1); '138 patent (claim 1).

The application for the '829 patent was filed first. In that application, the original claims broadly referred to a “hydraulic link” but did not require that the hydraulic link be “passive.” See, *e.g.*, Ex. C at C-045-046 ('829 prosecution history at original claim 1). Those original claims were rejected as anticipated by O'Neill, which the Examiner determined disclosed “a hydraulic link assembly comprising a hydraulic link.” *Id.* at C-063-064 (3/21/01 Office Action).

In response to that rejection, the applicant amended the claims to require a “passive hydraulic link.” Ex. C at C-074-075 (6/22/01 Amendment). The applicant was clear that this amendment was done to narrow the claims and overcome the prior art:

Claim 1 has been amended to specify that the hydraulic link is a “passive” hydraulic link. None of the cited references, including O'Neill, disclose or suggest a “passive” hydraulic link, as defined in the present specification (see page 17, lines 22 through 32)."

*Id.* at C-071. In response to this statement and amendment, the Examiner allowed the pending claims. *Id.* at C-076 (Notice of Allowability).

From this prosecution history, a POSITA would have understood two things. First, the claimed “passive hydraulic link” is different (and narrower) than the original hydraulic link that was disclosed in the cited prior art. Second, the “passive hydraulic link is “defined in the present specification” at page 17, lines 22 through 32:

Conventional active hydraulic operators are different from the hydraulic link of the present invention, which may be described as a passive hydraulic link because the hydraulic fluid sealed within the hydraulic link assembly merely transmits the actuating forces but is not employed to generate an actuating force for actuating the valve. Rather, the purpose of the hydraulic link is to provide a load path for the opposing actuating forces that originate from at least one spring member and the actuator assembly. A

Ex. C at C-018 (originally-filed specification at p. 17, lines 22 through 32)).

The prosecution history of the '138 patent is consistent. The '138 application was filed after the '829 application was rejected over O'Neill and those '829 claims had been amended to require a "passive" hydraulic link. Thus, the original claims in the '138 application required a "passive hydraulic link." Ex. D at D-052-053 ('138 prosecution history at originally-filed claim 1). Despite this, the Examiner still rejected the claims in light of the Kurishige '550 patent, which the Examiner determined disclosed "a hydraulic link assembly comprising a passive hydraulic link." *Id.* at D-075-076 (11/14/02 Office Action).

Once again, the applicants sought to overcome the rejection by distinguishing the "dynamic" hydraulic system of the prior art from the narrow, limited "passive" system of the claimed invention:

A major difference between a "dynamic" hydraulic system and a "passive" hydraulic system is the presence in dynamic hydraulic systems of fluid passages that allow the hydraulic fluid to flow during an actuation event (that is, inflow/outflow hole 22 in Figure 1 of the '550 patent). ***In passive hydraulic systems like the applicants', the hydraulic oil is substantially contained,*** thereby avoiding the flow of hydraulic fluid during an actuation event when the valve member is moving from a closed position to an open position.

Ex. D at D-086-087 (2/21/03 Amendment) (emphasis added). After the applicant narrowed the scope of the “passive hydraulic link,” the claims were allowed. *Id.* at D-094-095 (Notice of Allowability). This is a clear and unmistakable disclaimer.

“It is well established that the prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.” *Springs Window Fashions LP v. Novo Indus., L.P.*, 323 F.3d 989, 994 (Fed. Cir. 2003) (internal quotation marks and citation omitted). GM’s construction gives effect to this prosecution history and the applicant’s express confirmation that “passive hydraulic link” was “defined in the present specification.” Ex. C at C-071 (’829 prosecution history, 6/22/01 Amendment). This is how a POSITA would understand the term. Ex. A ¶¶ 100-110.

## 2. Westport’s Construction Seeks To Recapture The Scope It Disavowed During Prosecution

This prosecution history is undisputed. Westport admits that “[d]uring prosecution of the ’138 Patent, the applicant differentiates a ‘passive hydraulic system’ from an ‘active’ system” and that “[d]uring the prosecution of the ’829 Patent, the applicants... distinguished ‘assemblies that rely on the **dynamic flow** of a hydraulic fluid to actuate/open the valve.’” Opng. Br. at 21 and 23. But, Westport’s proposed construction then ignores this prosecution history.

Specifically, Westport argues that “the claims themselves define ‘passive hydraulic link’ as ‘a hydraulic fluid thickness through which said opening and closing forces are transmitted.’” Opng. Br. at 20. But, that proposed construction cannot possibly be correct because the asserted claims separately require that limitation (as shown in **red**):

(e) a hydraulic link assembly comprising a **passive hydraulic link** having **a hydraulic fluid thickness through which said opening and closing forces are transmitted**,

'829 patent (claim 1); '138 patent (claim 1). In other words, Westport's proposed construction entirely reads out the requirement—specified by the claim—that the claimed link not only “has a hydraulic fluid thickness through which said opening and closing forces are transmitted” but is also “passive.” Reading out limitations in this manner is wrong as a matter of law. *Bicon*, 441 F.3d at 951.

Moreover, Westport's construction cannot be correct because the original claims in the '829 patent application included the language Westport relies on (“a hydraulic fluid thickness through which said opening and closing forces are transmitted”) and were *rejected* until Westport amended the claims to require a “passive hydraulic link.” *See* Ex. C ('829 prosecution history) at C-045-046 (original claim), C-063-064 (rejection), and C-074-075 (amendment). Thus, not only should the requirement that the hydraulic link be “passive” be given effect, but it is so substantially different that the claims were only allowed after that limitation was added.

None of Westport's criticisms of GM's proposed construction are compelling. ***First***, Westport argues that GM is “importing a limitation from an embodiment into the claims.” Opng. Br. at 20. While claims are typically not limited to particular embodiments, here Westport expressly represented during prosecution that the “passive hydraulic link” is “defined in the present specification” at what is now '829 patent 7:14-22. And, that cited portion of the specification confirmed that “the hydraulic link of the present invention” is “a passive hydraulic link because the hydraulic fluid sealed within the hydraulic link assembly merely transmits the actuating forces but is not employed to generate an actuating force for actuating the valve.” GM's construction gives effect to this intrinsic evidence while Westport's does not.

**Second**, Westport argues that GM’s construction violates “the doctrine of claim differentiation” in light of claim 4 of the ’829 patent. Opng. Br. at 21. As an initial matter, claim differentiation is “not a hard and fast rule of construction.” *Kraft Foods, Inc. v. Int’l Trading Co.*, 203 F.3d 1362, 1368 (Fed. Cir. 2000). And, claim differentiation cannot be used to contradict the clear intrinsic evidence provided by the patents’ prosecution histories and specifications. “Although claim differentiation is a useful analytic tool, it cannot enlarge the meaning of a claim beyond that which is supported by the patent documents, or relieve any claim of limitations imposed by the prosecution history.” *Fenner Invs., Ltd. v. Cellco P’ship*, 778 F.3d 1320, 1327 (Fed. Cir. 2015) (emphasis added). Westport fails to reconcile its claim differentiation argument with the prosecution history’s clear disclaimer.

Moreover, claim differentiation does not apply here. As made clear by the cases Westport cites, there is no claim differentiation issue when the claim construction does not render the dependent claim superfluous. *See TurboCare Div. of Demag Delaval Turbomachinery Corp. v. GE*, 264 F.3d 1111, 1123 (Fed. Cir. 2001). Dependent claim 4 adds multiple limitations to claim 1 and is substantially different than GM’s proposed construction:

GM’s Construction	’829 patent claim 4
“sealed hydraulic fluid transmitting actuating forces but not employed to generate an actuating force”	“The injection valve of claim 1 wherein said hydraulic link assembly comprises a fluidly sealed hydraulic cylinder that is fluidly sealed from said interior chamber, said hydraulic link assembly comprising a piston and said hydraulic fluid is disposed within said hydraulic cylinder.”

For example, claim 4 requires that the hydraulic link assembly comprises “a piston” and a “hydraulic cylinder” that is “fluidly sealed from said interior chamber” and has “hydraulic fluid disposed within [it].” *See also* Ex. B (Quinlan Dep. Tr.), 13:3-6 (“I don’t think that a fluidly sealed hydraulic cylinder is the same as a sealed hydraulic fluid. One is speaking about maybe the fluid and one is speaking about the larger assembly.”). Claim differentiation is inapplicable



when the dependent claim does not provide “the only meaningful difference between the two claims.” *Wenger Mfg. v. Coating Mach. Sys.*, 239 F.3d 1225, 1233 (Fed. Cir. 2001). Even the words Westport plucks from the rest of Claim 4, “fluidly sealed,” do not support Westport’s claim differentiation argument. “Fluidly sealed” refers to (and modifies) Claim 4’s “hydraulic cylinder.” Claim 1, by contrast, does not recite a “hydraulic cylinder,” let alone “a fluidly sealed hydraulic cylinder.”

**Third**, Westport argues that “negative limitations” are generally disfavored. That may be, but there is no hard rule against them, and the Federal Circuit has affirmed the use of “negative claim limitations” in precisely this situation: “when the specification describes a reason to exclude the relevant limitation.” *Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1351 (Fed. Cir. 2012). Here, the prosecution history and specification provide the classic reason for a negative limitation: to exclude the very subject matter (dynamic hydraulic system) expressly disclaimed. Without it, Westport impermissibly recaptures the scope it gave up.

In light of the claim language, specifications, and applicants’ disclaimers, a person of ordinary skill in the art at the time of the invention would have understood the term “passive hydraulic link” to mean “sealed hydraulic fluid transmitting actuating forces but not employed to generate an actuating force.” Ex. A ¶¶ 100-110.

## V. **CONCLUSION**

For the foregoing reasons, GM respectfully requests that the Court adopt its proposed claim constructions, which are consistent with the intrinsic and extrinsic evidence.

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